

## CLAIMS

1. Process for continuously and permanently shaping a plate in plastic material, and subsequently, that which constitutes the side, is to be joined along each of the two longitudinal sides of a support, constituting the conveyor belt, **characterized in that** a manufacturing cycle of the plate, includes the following steps:

a) Blocking of the plate in correspondence to the shaped profile of the moulding unit, being obtained by forcing the counter-shaped heads of the corresponding presser members to descend into the respective seats of the shaped profile over which the plate has been deposited;

b) Localised execution, in correspondence to at least one relative seat, of the heat-moulding of the plate, at least one moulding presser with the heating head in the active position being provided;

c) Lifting from the moulding unit of the heating head of the moulding presser and subsequent lifting of the head of at least one of the stabilizer pressers;

d) Advancement of the plate, by means of the movement of the moulding unit transferring the presser members not previously raised, whose heads remain in a position in correspondence to the deformed plate in the seats of said moulding unit;

e) Eventual descent towards the corresponding seat of the moulding unit of the stabilizer head of a presser resting locally on the plate;

f) Lifting from the moulding unit of the heads of pressers transferred with it and return to position of said pressers;

g) Possible repetition of the cycle.

2. Process for continuously and permanently shaping a plate in plastic material, according to claim 1, **characterized in that** the working cycle of the plate, includes the following phase, between phase (b) and phase (c):

Cooling of the heating head of the forming presser that is in the OFF position, the heating function being inactive.

3. Apparatus for continuously and permanently shaping a plate in plastic material according to an undulated profile, particularly a flex side for a conveyor belt, including a supply line upstream from a plate in plastic material, curved by a corresponding reel, said plate is to supply a moulding unit, **characterized in that** said apparatus is made up of:

A guide and positioning surface of the plate in correspondence to a moulding wheel;

A moulding and transferral wheel, peripherally shaped according to a plurality of seats, obtained transversely with respect to the advancement direction of the plate, suitable for reproducing a continuous undulated profile;

A positioning, advancement and maintenance assembly in the form of the plate, peripheral with respect to the moulding wheel, of the mobile type, respectively; counter-clockwise in synchronization with the moulding and return wheel in a position independent of the moulding wheel, including: a pre-form presser, upstream of the surface involved in the shaping, set apart by at least one first stabilization and cooling presser, said axially mobile pressers resting perpendicularly on the interior of the corresponding seats obtained along the perimeter of the forming and transferral wheel;

A forming presser interposed between said pre-form presser and a cooling presser.

4. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the moulding presser element has a heating head of the induction type.

5. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the presser elements provide a counter-shaped head according to the shaped profile of each seat obtained peripherally with respect to the moulding wheel, orthogonally to the advancement axis of the plate.

6. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** it provides a blade for detaching the plate from the seats of the moulding wheel.

7. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** at least one presser element is, in correspondence with the counter-shaped head, provided with a cooling circuit.

8. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the moulding wheel is cooled, in correspondence with each seat of the shaped profile.

9. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the heating head of the moulding presser includes a support body to which the electrode is to be joined, said electrode presents the lower part with a counter-shaped tooth profile with respect to the shape defined by the seat of the moulding wheel, and for the interior part, a heating fluid feedback channel, separated from the support body by means of the interposing of a layer of insulating material which also has the function of completely insulating the electrode of the support body positioned above.

10. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** in the electrode of the heating head a probe is provided, in a position in the proximity of the end of the counter-shaped tooth, and between this probe and the heating channel, there is a channel for the circulation of the cooling fluid.

11. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the moulding presser includes an actuator fixed stably at the end of a column that from the posterior side of the apparatus, develops a vertical section that extends past the group stabilizer pressers and the pre-form presser to then provide an overhanging arm over the moulding wheel, positioning said forming presser to logically coincide with the remaining intermediate space between the pre-form presser and the stabilizer presser elements.

12. Apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** it provides a movement actuator of the wheel and of the support shoulder of the stabilizer pressers.

13. Process and apparatus for continuously and permanently shaping a plate in plastic material, according to previous claims, **characterized in that** the moulding wheel, rotating step by step, drags with it, by means of the shoulder to which it is temporarily linked, at least one stabilization and cooling presser, this stabilization and cooling presser subsequently returns to position.